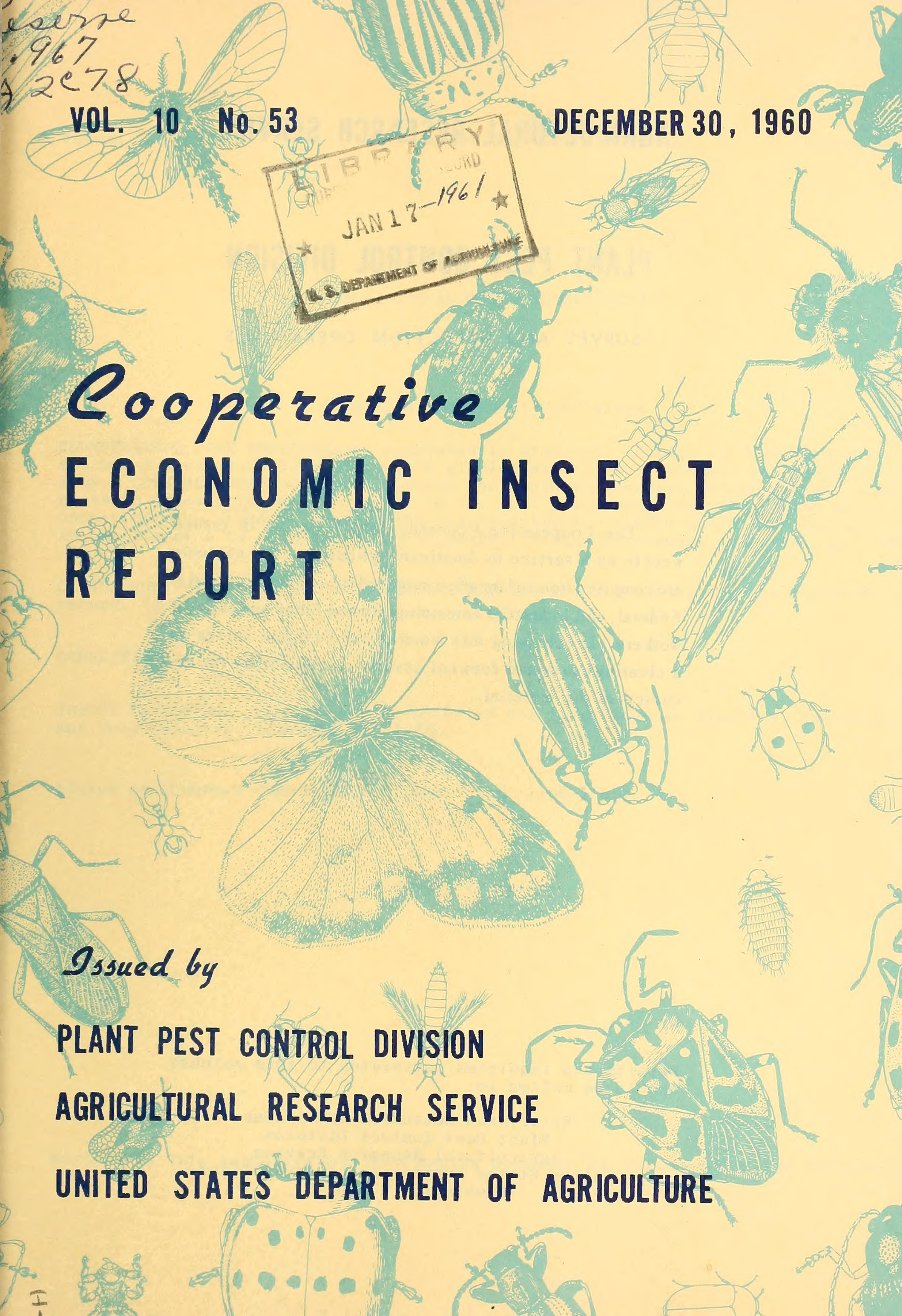
Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

Reserve
.967
A2C78

VOL. 10 No. 53 DECEMBER 30, 1960

LIBRARY
CURRENT SERIAL RECORD
JAN 17 1961
U.S. DEPARTMENT OF AGRICULTURE



Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 10 December 30, 1960 Number 53

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SOUTHWESTERN CORN BORER survey completed in Missouri. Damage evident throughout southwest area, with high percent of girdled stalks 22.4 compared with 13.6 in 1959. CORN ROOTWORM survey in eastern and southern Nebraska showed western corn rootworm (Diabrotica virgifera) to be the most predominant species in the major corn-producing areas of State, with few exceptions. WINTER GRAIN MITE damaging in small grains in central and north central Texas; treatments underway. (p. 1153).

CITRUS RUST MITE population in Florida highest for mid-December in 10 years of record. (p. 1154).

CORRECTIONS (p. 1155).

INSECT DETECTION: Camphor scale collected for first time in Pinellas, Escambia and Polk Counties, Florida. (p. 1154).

Status of EUROPEAN CORN BORER in 1960. (pp. 1156-1165).

****

Reports in this issue are for week ending December 23, unless otherwise indicated.

WEATHER OF THE WEEK ENDING DECEMBER 26

Widespread, mostly moderate to locally heavy, precipitation accompanied a low-pressure system as it moved from eastern Oklahoma at the beginning of the period, northeastward in advance of a sharp change to much colder weather, and passed over Maine in the early morning hours of the 22nd. This precipitation occurred as rain in the South and in the Atlantic coastal districts and as snow in the North, with snowfalls of 4 inches to locally over a foot in the higher elevations from West Virginia to Maine.

The very cold Arctic air that followed in the wake of the storm overspread the entire portion of the country from the Great Plains to the Atlantic and gulf coast, bringing the coldest weather of the season so far. Zero temperatures occurred as far south as Tennessee, and freezing extended to Rio Grande City in the lower Rio Grande Valley of Texas and to the vicinity of Lake Okeechobee in southern Florida. Minimum temperatures were zero and below on five days in the Minnesota area and on about 3 days (22nd to 24th) in northern sections eastward to New England and northwestern New Jersey. At many stations in Minnesota and the eastern Dakotas, the temperatures did not rise above zero on the 22nd. In Georgia, freezing occurred over the entire State on 6 days and in northern and central Florida on 4 or more days. Some of the extreme low temperatures were -28° at Cascade, Iowa, and -25° at Joliet, Illinois, on the 23rd; -9° at Louisville, Kentucky, and -3° at Crossville, Tennessee, on the 22nd; and -23° at Oakland, Maryland, and -17° at West Cummington, Massachusetts on the 23rd. The -9° at Louisville, Kentucky, was the lowest December temperature ever recorded in that city since records began there in 1872. It was 20° at Mobile, Alabama, and 32° at Tampa and 39° at Miami, Florida, on the morning of the 22nd. Preliminary reports indicate that freeze damage in Florida was confined principally to tender vegetables and was mostly light in the Rio Grande Valley of Texas, although tomatoes were hard-hit in the Rio Grande City area. Southerly winds accompanied a depression moving eastward across the northern interior and brought back normal temperatures to the region east of the Rocky Mountains during the weekend, and most of the country enjoyed fair weather and moderate temperatures on Christmas except some of the more northern areas. In contrast to the severe cold weather in the eastern portion of the country, the Far West, principally the Far Southwest and Great Basin area, experienced generally fair weather and above-normal warmth due to a stagnant, moderately high pressure area remaining over the Great Basin and southern Idaho until the end of the period. Rain, snow, and freezing rain, however, occurred on several days in the Pacific Northwest and there was much fog in the Pacific States, particularly in Washington. Temperatures for the week averaged much lower than usual over the eastern two-thirds of the country, with departures of more than 10° below normal from the middle and Upper Mississippi Valley and Great Lakes region to southern Florida and the middle and south Atlantic coast. In the Far West, temperatures ranged from near normal to mostly 5° above normal, except slightly below in interior valleys of the Pacific States.

Precipitation generally ranged from about 1/2 to locally over 1 inch in western sections of Washington and Oregon and in the eastern area from the middle gulf coast and Florida northwestward to eastern Canada. Elsewhere over the country, totals were less than 1/2 inch, with no measurable amounts in a large far southwestern area from California and southeastern Oregon to northeastern Texas and central Arkansas. Snow cover Tuesday morning was mostly limited to the higher elevations of the Far West and a strip across the northern third of the country as far south as central Nebraska, south central Indiana, and West Virginia. Moderate temperatures over the weekend had reduced the cover east of the Rockies and above-normal warmth in the Far West caused the limited snow cover to disappear from many valleys. Some of the greater depths are 70 inches at Mt. Baker Lodge, Washington; 39 inches at Soda Springs, California; 34 inches at Silver Lake, Utah; 26 inches at Fox Park, Wyoming; 22 inches at Boonville, New York; and 15 inches at Greenville, Maine. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - 1960 survey completed. Percent of stalks girdled higher in 1960 than in the past several years. Damage evident through southwest area. The high county average in 1959 was 13.6 as compared with 22.4 percent in 1960. A total of 24 counties was surveyed. The average percent of girdled stalks per county was as follows: Barry 12.4, Barton 6, Bates 0.8, Benton 0.4, Cass 0, Cedar 8.4, Christian 6.4, Dade 5, Greene 8, Henry 0.8, Hickory 3.6, Jasper 22.4, Johnson 0, Lawrence 9.2, McDonald 12.4, Newton 5.6, Oregon 7, Ozark 2, Pettis 0, Polk 8, St. Clair 0.4, Stone 5.2, Taney 5.6 and Vernon 6.8. (Munson).

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - D. virgifera, D. longicornis and D. undecimpunctata howardi found in adult survey conducted this season in all counties in eastern and southern half of State. D. virgifera was the most predominant species in the major corn-producing areas of the State with few exceptions. This species accounted for about 68 percent of the total adult population. D. longicornis dominates the northeastern crop district where 73 percent of the adults composed this species. D. undecimpunctata howardi had small spotted infestations in scattered areas of State. (Bergman).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Light adult infestations in various oat fields examined in Blanco County. (Garner).

GREENBUG (Toxoptera graminum) - TEXAS - Infestations continue very light and no damage apparent to small grains in central and north central counties. (Chada).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Damaging populations appearing in many small grain fields throughout central and north central areas. Treatment underway by many farmers. (Chada).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Medium infestations in central and southwest Arizona barley. (Ariz. Coop. Sur.).

PEA APHID (Macrosiphum pisi) - ARIZONA - Light populations in alfalfa in central area. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Although a few fields still have medium populations, infestations now generally low statewide. (Ariz. Coop. Sur.).

FRUIT INSECTS

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Eggs abundant on stone fruit tree buds and twigs in Dona Ana County. (N. M. Coop. Rpt.).

PECAN WEEVIL (Curculio caryae) - TEXAS - Heavy local infestations in Gillespie County. Larvae have migrated from pecans into the soil. (Garner).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Moderate to heavy infestations in several areas of Montague County. (Roberts).

Citrus Insect Situation in Florida - Mid-December 1960 - PURPLE SCALE (Lepidosaphes beckii) infested 64 percent of groves inspected. Although activity increased, populations will rise only slightly from the present low level. FLORIDA RED SCALE (Chrysomphalus aonidum) infested 68 percent of groves. Activity dropped from the high range and will hold near the current level during January. Populations generally will decline after December but 4 districts may have a few moderately heavy infestations during the next 4 weeks. CITRUS RED MITE (Panonychus citri) infested 48 percent of groves. A downward trend in activity recently occurred. No districts show high activity and infestations continue to be very spotty. Statewide population below average for this time of year. CITRUS RUST MITE (Phyllocoptruta oleivora) infested 86 percent of groves. For first time in 2 months, activity has shown a downward trend, but activity is still very high throughout State and is expected to remain in the high range for another month. Statewide population is the highest for mid-December in 10 years of record. TEXAS CITRUS MITE (Eutetranychus banksi) in 27 percent of groves, none heavily infested. Little change is expected. (Simanton, Thompson, Johnson (Citrus Exp. Sta., Lake Alfred)).

TRUCK CROP INSECTS

NOCTUIDS - CALIFORNIA - Medium infestations of larvae of Proxenus mindara and Pseudaletia unipuncta in soil in strawberry plantings in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Activity continued to be slow with only 4 active spots in State. Latest infestation adjacent to a severely pruned electric line right-of-way. (Tex. For. Pest. Comm., Nov. Rpt.)

A COCCID (Matsucoccus fasciculensis) - CALIFORNIA - Severely damaging a 500-acre stand of ponderosa pines in groups up to 50 trees in Hume Lake area in Sequoia National Park, a high value recreational area. (U. S. F. S.).

A PINE SEED MOTH (Hedulia injectiva) - CALIFORNIA - Damaging Jeffrey pine cones in South Fork area and the Big Valley district of Modoc National Forest. (R. W. Jessen).

APHIDS - NEW MEXICO - Populations of an aphid (probably Anuraphis helichrysi) very abundant on potted chrysanthemums in greenhouses in several areas of State, week ending December 17. Macrosiphum rosae light to moderate on roses in nursery in Otero County. (N. M. Coop. Rpt.). Light spotted infestations of Myzus persicae on carnations in greenhouses in southern counties. (N. M. Coop. Rpt., Dec. 17). CALIFORNIA - Heavy population of Neosymydobius annulatus on birch in a property in El Cajon, San Diego County. (Cal. Coop. Rpt.).

WHITEFLIES - NEW MEXICO - Adults and nymphs abundant on foliage of poinsettias in greenhouse in Otero County. (N. M. Coop. Rpt., Dec. 17.).

A GROUND PEARL (Margarodes rileyi) - FLORIDA - Collected by the hundreds on roots of Morris thatchpalm (Thrinax parviflora) on a golf course on Stock Island November 17, 1960. (Knowles, Woodruff). First host record for the scale in Florida. (Fla. Coop. Sur.).

CAMPHOR SCALE (Pseudaonidia duplex) - FLORIDA - Collected on Camellia japonica at Pinellas Park, Pinellas County, December 6 (Bingaman, Miller); at Pensacola, Escambia County, December 8 (Albritton, Bragdon); and on azalea at Winter Haven, Polk County, December 7. (Denmark, McAulay et al.). New county records.

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy population on hawthorn in Santa Rosa, Sonoma County and light on plum in Orangevale, Sacramento County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

LICE - UTAH - In Emery County, 3,500 cattle dipped and lice abundant in additional herds. (Knowlton). TEXAS - Moderate infestations of Bovicola crassipes on goats from auction sale in Bexar County. (White).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - NORTH CAROLINA - Two infestations found in Onslow County and one in Brunswick County. (Bowen).

A CLOTHES MOTH - ARIZONA - An undetermined species a problem in houses in the Phoenix area of Maricopa County and in Yuma County. (Ariz. Coop. Sur.).

EARWIGS - TEXAS - Undetermined species continue to be a nuisance in homes in Bryan-College Station area of Brazos County. (Newton).

A BLISTER BEETLE(Meloe sp.) - CALIFORNIA - Heavy populations hibernating among dry cottonwood leaves in La Grange, Stanislaus County. (Cal. Coop. Rpt.).

CORRECTIONS

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY - The following interceptions listed for Wilmington, Delaware, in volume 10 should be for Wilmington, North Carolina. Khapra beetle (Trogoderma granarium) - No. 31, page 724; No. 48, page 1105; No. 49, page 1117. A bruchid (Bruchus lentis) - No. 32, page 750. White garden snail (Theba pisana) - No. 52, page 1148.

CEIR 10 (51): 1132 - CHINCH BUG (Blissus leucopterus) - KANSAS - Should read, "Annual hibernation survey completed. Collections of one-square-foot samples of bunch grass made during November and December."

CEIR 10 (46): 1078 - APHIDS - UTAH - Should read, "Periphyllus salicicorticis infesting willows below ground surface in Big Cottonwood Canyon, Salt Lake County, August 27, 1960. (Smith, Knowlton). According to ARS records, new to the State."

LIGHT TRAP COLLECTIONS

	Agrotis ipsilon	Feltia subterranea	Spodoptera exigua
ARIZONA			
Mesa 12/9-23			2
SOUTH CAROLINA			
Charleston 12/12-18	2	1	

STATUS OF THE EUROPEAN CORN BORER IN 1960

Survey Data Provided by State Agricultural Agencies,
Compiled and Summarized by Survey and Detection Operations,
Plant Pest Control Division, Agricultural Research Service,
United States Department of Agriculture

Cooperating agricultural agencies in 18 states reported on surveys conducted in their states to determine the abundance and distribution of the European corn borer (Pyrausta nubilalis (Hubner)) in 1960. All survey data, summaries or records of field observations were submitted to Survey and Detection Operations, Plant Pest Control Division office in Washington, D. C., for processing. After processing, the material was reviewed by personnel of the Entomology Research Division, ARS. This is a compilation of the information submitted by the State agencies.

Distribution

Spread of the European corn borer during 1960 was very limited. A total of only 6 new counties was reported from the states of Georgia, North Carolina and Virginia. The 6 new counties reported during 1960 are a considerable decrease from the 13 new counties reported in 1959 and the 58 new counties and parishes reported in 1958. Special surveys were reported from New Mexico, Texas and Wyoming during 1960, all with negative results.

Counties reported as infested for the first time in 1960 are as follows:

Georgia	North Carolina	Virginia
Habersham Towns Union White	Union	Bath

Abundance

The 1960 European corn borer survey was conducted during the late summer and fall of the year. The survey is designed to measure the fall population of European corn borer larvae. The participating states were encouraged to time the surveys to include a high percentage of mature larvae whenever possible. In all cases, except for some minor differences in compiling data, the accepted survey methods were used.

The survey was continued on a district basis whenever possible in 1960. A district is usually a group of counties within a state, in some cases being based on the Agricultural Marketing Service Crop Reporting Districts. However, some of the states are being considered as a single district in this report since they prefer conducting a county survey. The population levels for 1959 and 1960 are shown in Table 1 and Table 2, with the district or county counts being reported in the latter table.

Population levels of the European corn borer were generally higher than in 1959 in the Central States. Increases were most notable in Iowa, Wisconsin, Minnesota, North Dakota and South Dakota. In North Dakota, the counts in Cass and Richland Counties (District II), were the heaviest ever recorded; 474 borers per 100 plants in 1960 compared with 125 in 1959. Counts in South Dakota showed increases in all districts, with the number of borers per 100 plants averaging 172 for the State compared with 51 in 1959. The highest counts were recorded in the southeastern and east central districts of South Dakota, being 220 and 261, respectively. The most notable increases recorded in Minnesota in 1960 were those in the west central and southwest districts, where counts were reported as 173 borers per 100 plants in the west central district and 280 in the southwest. The greatest increases in Wisconsin appeared to be in the west central, central and south central districts, with counts averaging 120, 215 and 135 borers per 100 plants, respectively. Increases were also recorded in five other Wisconsin districts. In Iowa, the greatest increase in populations occurred in District VII, where counts were 286 borers per 100 plants, compared with 30 in 1959. Counts also increased in Districts II, III, V and VIII in Iowa to over 100 borers per 100 plants, with the overall state average being 124 compared with 50 in 1959. The greatest increase recorded in Missouri was in District IX (southeastern area), where counts averaged 154 borers per 100 plants compared with 42 in 1959. The overall populations in other Central States were generally comparable with those of 1959 except in Illinois, where populations were slightly higher.

In the Eastern States, populations were higher than those encountered in 1959 in Maryland, Pennsylvania and West Virginia, but lower in Delaware. The average number of borers per 100 plants was 262 in Delaware, 136 in Maryland, 88 in Pennsylvania and 58 in West Virginia, compared with counts of 394, 114, 52 and 31, respectively, for the same states in 1959. Highest populations were recorded in Sussex County, Delaware, and Dauphin and Mifflin Counties, Pennsylvania, where counts per 100 plants were 415, 387 and 372, respectively.

Surveys were conducted in Michigan and Virginia again in 1960, but population counts were not included in the United States average since they were not comparable with the 1959 survey. However, the survey in those two states indicates that populations have increased.

The survey in Arkansas indicates an increase in populations, the average count being 65 borers per 100 plants compared with 54 in 1959 in the two comparable districts surveyed.

For all states reporting, based on comparable districts or counties surveyed, the average number of borers per 100 plants increased from 86 in 1959 to 129 in 1960. The average for the Central States was 133 in 1960 compared with 67 in 1959, and the average for the Eastern States (Delaware, Maryland, Pennsylvania, West Virginia) was 136 in 1960 compared with 148 in 1959.

A summary of the 1959 and 1960 surveys is shown on Table 1 by states. State summaries are shown on Table 2. Accompanying maps show districts surveyed, approximate population levels, and counties infested for the first time in 1960.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1960, Compared With Data for 1959

States	1959			1960			Comparable Districts or Counties Surveyed Both Years		
	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	No. of Districts Surveyed	Average No. of Borers Per 100 Plants	No. of Counties Surveyed	Number	Borers Per 100 Plants	
								1959	1960
Eastern									
Delaware	1	394	3	1	262	3	1	394	262
Maryland	3	114	23	3	136	23	3	114	136
Pennsylvania	1	54	36	1	83	41	35	52	88
West Virginia	1	29	17	1	58	17	13	31	58
Total	6		79	6		84			
Average 1/								148	136
North Central									
Illinois	1	77	40	1	101	40	40	77	101
Indiana	12	65	91	12	61	87	12	65	61
Iowa	12	50	99	12	124	99	12	50	124
Kansas	4	38	36	3	68	25	1	72	77
Minnesota	6	35	63	6	107	63	6	35	107
Missouri	8	36	46	8	61	46	8	36	61
Nebraska	8	116	66	8	119	69	8	116	119
North Dakota	1	125	2	2	372	4	1	125	474
Ohio	1	73	33	1	72	33	33	73	72
South Dakota	6	51	40	6	172	42	6	51	172
Wisconsin	9	32	58	9	93	58	9	32	93
Total	68		574	68		566			
Average 1/								67	133
Southern									
Arkansas	4	55	18	4	63	19	2	54	65
United States									
Total	78		671	78		669			
Average 1/								86	129
States Surveyed But Not Included in U. S. Average									
Michigan	1	11	6	1	27	19			
Virginia	2	182	20	2	216	8			

1/ Weighted averages based on districts surveyed.

Table 2 - European Corn Borer Abundance in Corn, Fall of 1960, Compared With Data for 1959

State	Average Number of Borers Per 100 Plants	
	1959	1960
Arkansas (Ark. Ins. Sur.)		
North Central	32	22
Northeast	68	58
East Central	80	97
Southeast	40	71
State Mean	55	63
State mean comparable districts (2)	54	65
Delaware (Agr. Exp. Sta.)		
Kent	427	239
New Castle	282	132
Sussex	473	415
State Mean	394	262
Illinois (Natural History Survey, Ext. Ser.)		
Adams	175	207
Boone	64	75
Brown	104	91
Bureau	208	36
Champaign	3	13
Christian	36	114
Clark	27	20
De Kalb	200	57
Du Page	59	65
Effingham	45	56
Greene	69	234
Hancock	64	278
Henderson	87	136
Iroquois	61	122
Jasper	16	49
Jefferson	4	15
Jo Daviess	114	68
Kankakee	107	59
Knox	108	135
Lake	39	24
La Salle	120	55
Lawrence	29	41
Livingston	85	129
Logan	12	54
McDonough	65	193
McLean	118	247
Macon	28	29
Macoupin	127	192
Madison	33	111
Mercer	100	132
Illinois (cont'd)		
Moultrie	9	29
Ogle	211	125
Peoria	53	160
St. Clair	9	38
Sangamon	14	90
Vermilion	11	41
Whiteside	184	76
Will	75	92
Winnebago	83	131
Woodford	121	205
State Mean	77	101
Indiana (Ext. Ser., Exp. Sta.)		
North Northwest	50	64
North North Central	93	192
North Northeast	208	76
Northwest 1/	49	11
North Central	107	73
Northeast	72	125
Southwest 1/	10	12
South Central	21	11
Southeast	64	18
South Southwest	23	37
South South Central	30	56
South Southeast	52	59
State Mean	65	61
Iowa (State Dept. of Agr.; Ext. Ser.; Exp. Sta.; Ent. Res. Div., ARS, USDA)		
District I	245	235
District II	78	181
District III	15	112
District IV	123	165
District V	37	149
District VI	52	56
District VII	30	286
District VIII	26	143
District IX	47	44
District X	23	66
District XI	16	26
District XII	18	30
State Mean	50	124

1/ Areas not completely surveyed in 1960.

Table 2 - (Cont'd)

State	Average Number of Borers Per 100 Plants	
	1959	1960
Kansas (Ins. Sur.)		
Northeast	72	77
North Central	33	66
Southeast	8	-
East Central	40	60
State Mean	38	68
State mean comparable districts (1)	72	77
Maryland (Agr. Ext. Ser., Ins. Sur.)		
Eastern Shore	191	209
Southern area	68	81
Western and Central areas	62	93
State Mean	114	136
Michigan (Ext. Ser.)		
State Mean	11	27
(Survey in 1959 conducted in 6 counties; survey in 1960 conducted in 19 counties)		
Minnesota (State Dept. of Agr.)		
West Central	19	173
Central	20	60
East Central	22	34
Southwest	119	280
South Central	42	65
Southeast	22	30
State Mean 1/	35	107
Missouri 2/ (Ext. Ser., Ins. Sur.)		
District I	47	56
District II	43	54
District III	56	64
District IV	35	34

State	Average Number of Borers Per 100 Plants	
	1959	1960
Missouri (cont'd)		
District V	31	21
District VI	24	79
District VII	12	28
District IX	42	154
State Mean	36	61
Nebraska 2/ (Agr. Exp. Sta., Ext. Ser., Ins. Sur.)		
North	79	71
Northeast	223	191
Northwest	25	3
Central	158	227
East	170	222
South	161	111
Southeast	66	106
Southwest	42	18
State Mean	116	119
North Dakota (State Dept. of Agr.)		
District I	-	269
District II	125	474
State Mean	125	372
State mean comparable districts (1)	125	474
Ohio (Exp. Sta.; Ext. Ser.; ARS, USDA)		
Northwestern Counties		
Allen	88	74
Defiance	33	61
Fulton	102	65
Hancock	62	30
Hardin	29	89
Henry	100	89
Lucas	68	97
Paulding	64	284
Putnam	110	115
Van Wert	71	41
Williams	51	25
Wood	45	49

(Ohio cont'd on page 1161)

1/ State mean for 1960, based on average of all stops (315), was 92.

2/ Crop Reporting Districts.

Table 2 - (Cont'd)

State	Average Number of Borers Per 100 Plants	
	1959	1960
Ohio (cont'd)		
West Central Counties		
Auglaize	18	49
Champaign	18	47
Clark	28	42
Darke	176	136
Logan	17	48
Mercer	107	64
Miami	72	59
Shelby	11	218
Union	38	86
Central Counties		
Delaware	135	76
Fayette	14	2
Franklin	41	22
Madison	14	1
Pickaway	83	15
Southwestern Counties		
Butler	100	24
Clinton	78	53
Greene	34	6
Montgomery	161	45
Preble	283	104
Warren	59	179
Northeastern County		
Wayne	91	79
State Mean	73	72
Pennsylvania (State Dept. of Agr.)		
Adams	58	71
Armstrong	26	47
Beaver	–	46
Berks	115	253
Bucks	92	99
Butler	31	40
Centre	21	27
Chester	162	132
Columbia	–	25
Crawford	13	21
Cumberland	51	68
Dauphin	23	387
Delaware	–	88
Erie	1	14
Fayette	50	19
Franklin	85	177
Fulton	129	–
Greene	–	81
Indiana	65	37
Pennsylvania (cont'd)		
Juniata	49	128
Lancaster	55	59
Lawrence	55	19
Lebanon	30	254
Lehigh	68	103
Luzerne	23	39
Lycoming	17	21
Mercer	26	45
Mifflin	38	372
Montgomery	151	95
Northampton	77	103
Northumberland	–	54
Perry	36	73
Schuylkill	64	59
Snyder	58	58
Somerset	30	13
Sullivan	–	4
Union	12	34
Warren	9	29
Washington	74	61
Westmoreland	52	56
Wyoming	30	21
York	56	62
State Mean	54	83
State mean comparable counties (35)	52	88
South Dakota (Agr. Exp. Sta., Ext. Ser.)		
North Central	6	90
Northeast	21	140
Central	54	140
East Central	97	261
Southeast	120	220
South Central	10	182
State Mean	51	172
Virginia (Ins. Sur.)		
Northern District 1/	213	236
Southwestern District 1/	151	147
State Mean	182	216

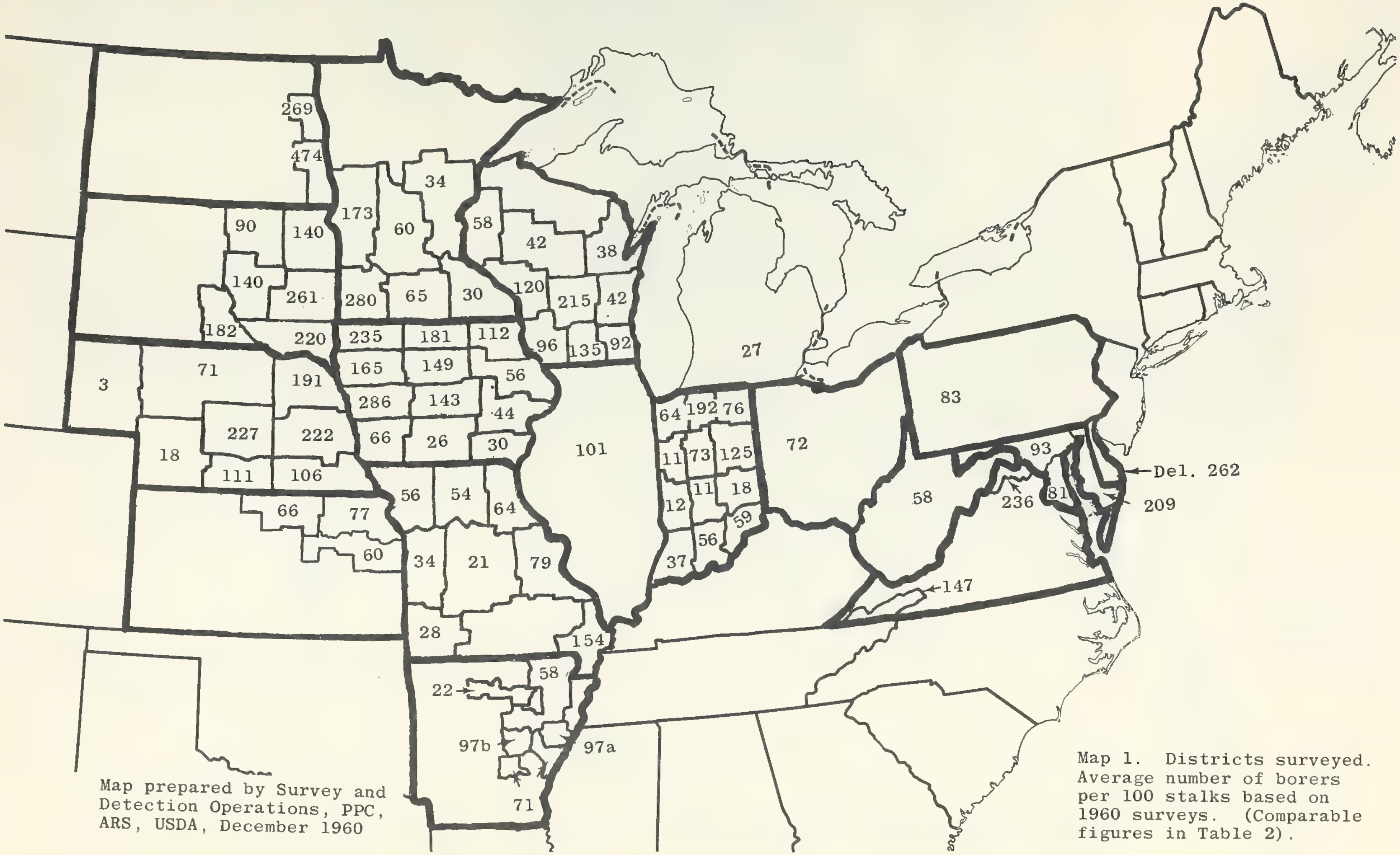
1/ Districts in 1959-60 not comparable.

Table 2 - (Cont'd)

State	Average Number of Borers Per 100 Plants		State	Average Number of Borers Per 100 Plants	
	1959	1960		1959	1960
West Virginia (Exp. Sta.)			Wisconsin (State Dept.of Agr.)		
Berkeley	83	82	Northwest	26	58
Braxton	5	-	North Central	10	42
Hancock-Ohio-Brooke	64	59	West Central	11	120
Clay	12	6	Central	29	215
Greenbrier	31	3	Southwest	48	96
Hampshire	19	70	South Central	40	135
Hardy	22	108	Southeast	63	92
Harrison	39	106	East Central	28	42
Jefferson	-	104	Northeast	37	38
Kanawha	33	-			
Lewis	-	23	State Mean	32	93
Monongalia	16	174			
Monroe	18	20			
Nicholas	Trace	5			
Pleasants	27	3			
Preston	46	42			
Wood	20	70			
State Mean	29	58			
State mean comparable counties (13)	31	58			

EUROPEAN CORN BORER ABUNDANCE

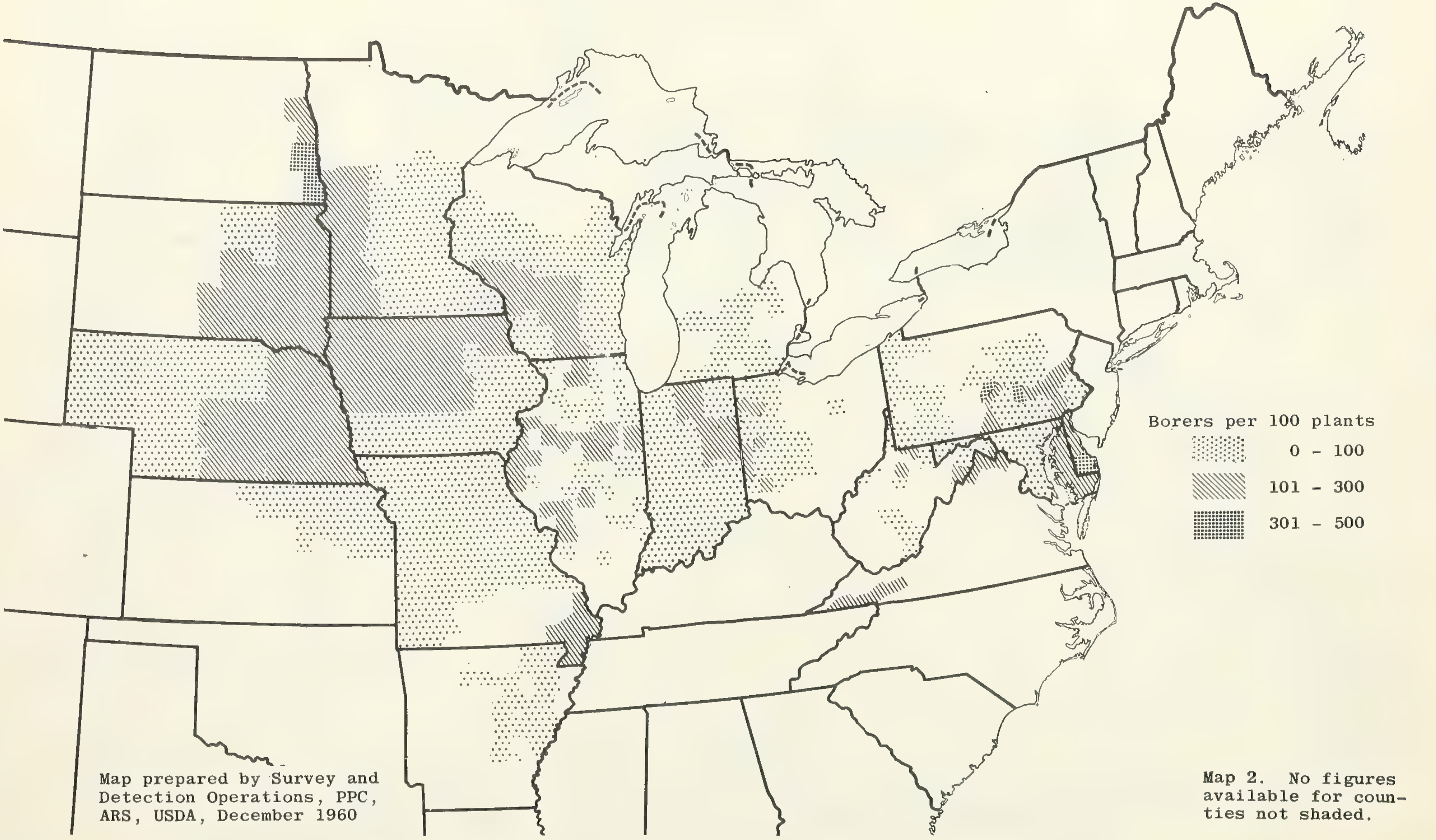
FALL 1960



Map prepared by Survey and Detection Operations, PPC, ARS, USDA, December 1960

Map 1. Districts surveyed. Average number of borers per 100 stalks based on 1960 surveys. (Comparable figures in Table 2).

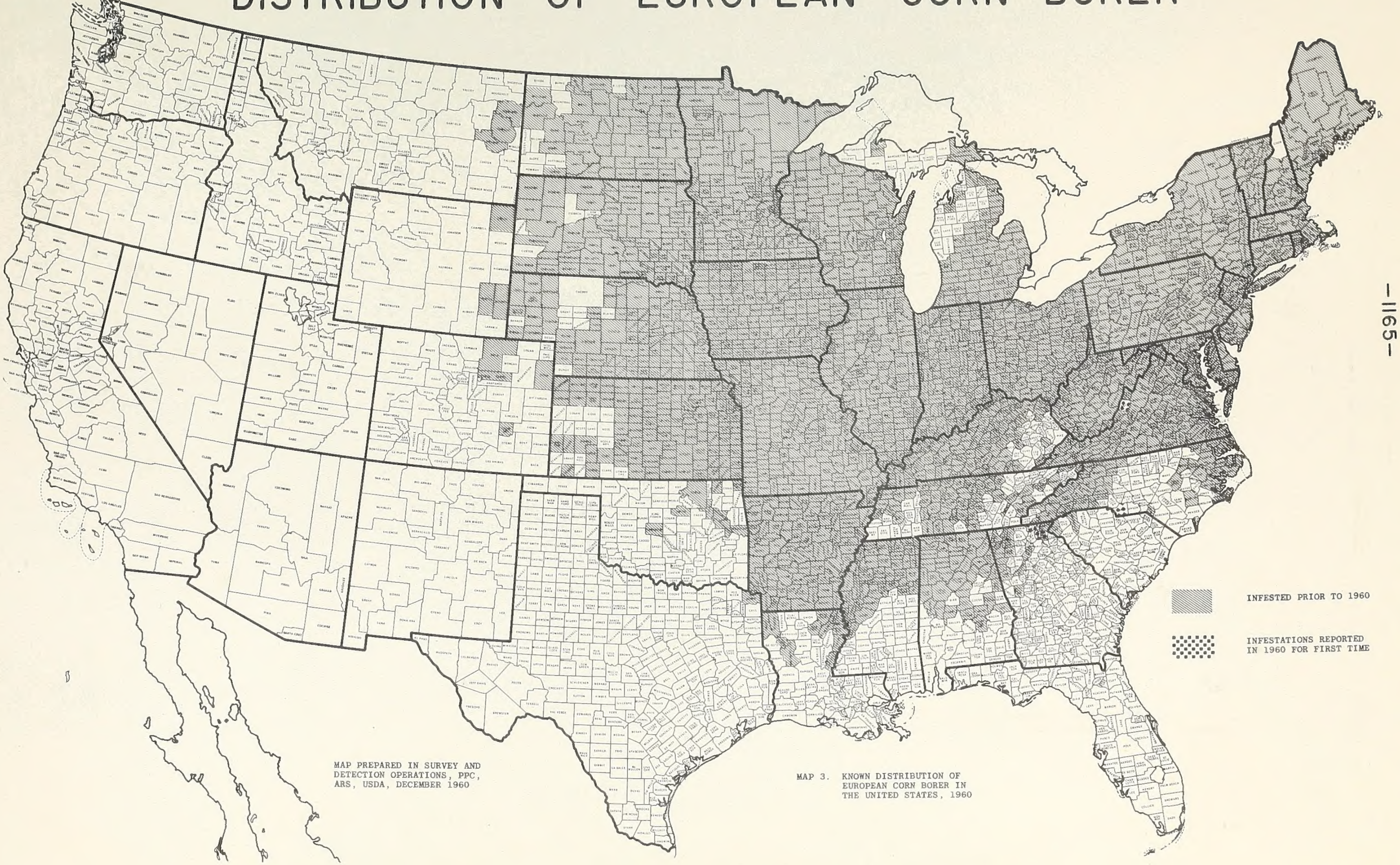
EUROPEAN CORN BORER ABUNDANCE
FALL 1960



Map prepared by Survey and Detection Operations, PPC, ARS, USDA, December 1960

Map 2. No figures available for counties not shaded.

DISTRIBUTION OF EUROPEAN CORN BORER



MAP PREPARED IN SURVEY AND
DETECTION OPERATIONS, PPC,
ARS, USDA, DECEMBER 1960

MAP 3. KNOWN DISTRIBUTION OF EUROPEAN CORN BORER IN THE UNITED STATES, 1960

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE